# TOPIC 07-3 – Atrial fibrillation

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## 0292

### Effect of cardiac resynchronization by left ventricular pacing alone on the incidence of atrial fibrillation in patients with severe heart failure

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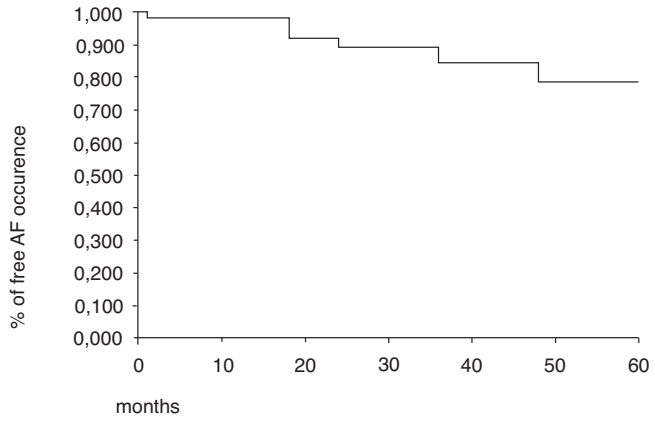
**Purpose:** Cardiac resynchronization therapy (CRT) induces a reverse remodeling of left ventricle. This effect should result in reduction of the incidence of atrial fibrillation (AF) but outcome of randomized studies failed to support this hypothesis. Permanent right ventricular (RV) pacing, mandatory during CRT by biventricular (BIV) pacing, has been shown to highly favor the occurrence of AF. However whether this deleterious effect is limited to RV pacing or could be extended to left ventricular (LV) pacing remains unknown. Evaluation of CRT by LV pacing alone offers a unique opportunity to bring some information on this question

**Methods:** We included 81 patients (55 M, 26 F, mean age 69 years) consecutively resynchronized in our centre for NYHA class III or IV heart failure by LV pacing alone. These patients had the recommended indications for CRT (sinus rhythm, wide QRS, and optimal pharmacological treatment). They were prospectively followed every 6 months and at each visit AF occurrence was assessed as well as any hospitalization for AF.

**Results:** Among the 81 patients 12 (14.8%) had new onset of AF during follow-up. Kaplan-Meier estimate of time to first AF occurrence is reported in the figure. After 5 years 80% of the patients were free of AF.

**Conclusion:** In patients with CRT by LV pacing alone for severe heart failure and sinus rhythm at implantation, occurrence of AF is not an exceptional event, found with an incidence close to the figure reported with BIV pacing. LV and RV pacing seem to carry the same risk of occurrence of AF.




## 0036

### Alterations of cardiac mitochondria isolated from patients with atrial fibrillation

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**Introduction:** Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia. During AF, structural and electrophysiological atrial remodeling occurs and is part of the paradigm "AF begets AF". Some data suggest that mitochondria alterations could be part of this remodeling. The purpose of this study was to evaluate cardiac mitochondrial calcium homeostasis and respiration in human AF.

**Materials and methods:** Mitochondria of right atrial appendages were isolated from patients in chronic atrial fibrillation (n=5) and compared from patients in sinus rhythm (SR) (n=5). Mitochondrial calcium Ca2+ uptake and release were assessed with isolated mitochondria. Mitochondria bioenergetics were studied through mitochondrial transmembrane potential ($\Delta\Psi m$) and mitochondrial respiration evaluation.

**Results:** Contrary to mitochondrial calcium uptake mediated by the calcium uniporter, mitochondrial calcium release by the mitochondrial sodium-calcium exchanger was significantly altered in patients with chronic AF in comparison with SR patients. Mitochondrial respiration supported by ADP and stimulated by glutamate + malate was significantly greeter in chronic AF patients than in SR patients, as was mitochondrial transmembrane potential. Succinate-stimulated respiration was not different between the two groups.

**Conclusion:** We report mitochondrial calcium homeostasis and respiration alterations in human chronic AF. Further investigations are needed to know whether these alterations could participate to the pathophysiology of AF.

## 0145

### Changes in quality of life of patients, belonging to EVABLAF cohort, with resistant atrial fibrillation treated by radiofrequency ablation

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**Background:** Pulmonary vein isolation (PVI) is effective in patients with resistant paroxysmal atrial fibrillation (AF). However, its impact on quality of life (QoL) is not completely understood, mainly on a long term.

**Methods:** Thirty-two patients (78% of men; age 55±12 years) were selected for PVI because of a symptomatic paroxysmal or persistant AF (84% of paroxysmal AF). Two questionnaires based on the Medical Outcomes Short Form 36 and the Symptom Checklist QoL were obtained before PVI, 6 months, 1 year and 2 years after PVI. These patients treated in Amiens university hospital belong to EVABLAF national cohort.

**Results:** 41 procedures were realized (1.3/patient). The main symptoms described before PVI were tiredness, sleep deprivation and irregular heartbeat. The rate of AF recurrence after 6 month is 9% and 19% after two years. After a follow-up period of more than two years, scores for symptom frequency (21,4±8,4 vs 16,4±9,5), symptom severity (19,9±8,5 vs 13,3±7,5), global score (49,6±19,6 vs 62,3±19), physical composite score (52,7±21,8 vs 61,7±20,7), and mental composite score (48,7±15,2 vs 57,7±20,2) improved significantly ($p<0,05$ each). This cohort had significantly worse QoL scores in 6 of the 7 SF-36 subscales (social functioning not studied) at baseline compared with age-matched healthy control subjects. After PVI, patients improved significantly, but not resulting in equivalence with the healthy control population. This significant improvement already occurs after the first year and persists after two years, even though we notice a little deterioration of the QoL on a long term.

**Conclusions:** QoL measures in patients with resistant paroxysmal AF are severly depressed before PVI. Within a 2-years follow-up period after ablation, scores studying QoL improved significantly. It shows the interest of catheter ablation for resistant paroxysmal AF, pending confirmation of these results nationally.